



## Mach 1<sup>®</sup> SpeedCharger™ For 3.6 / 3.7 & 7.2 / 7.4 Volt Li-Ion Batteries

Universal Charger for Li-Ion  
Camcorder & Digital Camera Batteries

MSC1LX Series Chargers

PLEASE READ THE INFORMATION AND FOLLOW ALL INSTRUCTIONS THOROUGHLY BEFORE USING THIS PRODUCT.

### Introduction

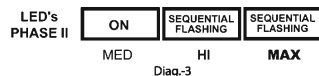
The Mach 1 SpeedCharger is a highly advanced and fully automatic battery charger which is compatible with 3.6 / 3.7 & 7.2 / 7.4 Volt Lithium-Ion batteries for camcorders and digital cameras from Sony, Canon, JVC, Panasonic, Hitachi, RCA, Nikon, Kodak, Fuji and other manufacturers. In addition to the adapter plates included, you can also purchase additional adapter plates for other Li-Ion battery models.

The Mach 1 SpeedCharger features microprocessor controlled Neotherm2™ active pulse speedcharging to charge your battery approximately three times faster than other chargers. Not only will it charge the battery safely and reliably, it will prolongs battery life. Charging progress, MAX charge and error conditions are all provided by the bi-color LED indicators.

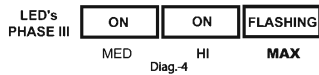
Flexible power input allows you to use this Mach 1 SpeedCharger from home or overseas with its 110V-240V AC Universal Power Supply, or on the road using the DC Cigarette Lighter Adapter included.

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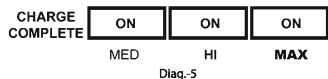
**Phase II – MED Charge:** The MED LED is on continuously and other LED's are flashing in sequence (see diag.-3). At this point the battery is typically about 50% charged. Some very small capacity batteries (650mAh) and worn out batteries can be as low as 10% charged.



**Phase III – HI Charge:** The MED and HI LED's are on and the MAX LED is flashing (see diag.-4). At this point the battery is typically, about 70% charged.



**Charge Complete – MAX Charge:** All three LED's are on at the same time (see diag.-5). Charging has completed and the battery is fully charged. It is recommended to remove the battery at this time.



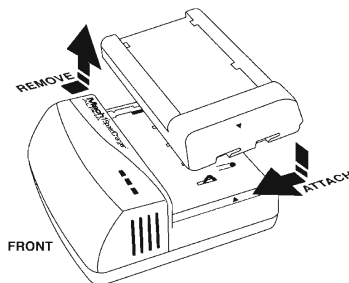
**Error Condition – Charge Terminated:** If the Mach 1 detects a problem with the battery being charged, an Error Condition will be shown with the indicators Flashing Red and the charge is stopped. To reset the error condition, unplug the charger from the power adapter for a few seconds, then reconnect it. If the error occurs again, there may be a defect in the battery that will prevent safely speed-charging this battery.

4.

### Operation:

#### Getting Ready

Choose the adapter plate for the type of Li-Ion (Lithium-Ion) battery you will be charging. Each of the adapter plates is labeled as to the batteries it can work with. If the charger base does not already have the adapter plate you want attached, you will need to remove the adapter plate first by pushing down on the plate and sliding it to the rear of the charger base (away from the LED indicators). Then, attach the selected adapter plate to the charger unit by aligning the arrows on the sides of the adapter plates and the charger base as shown. While pressing down lightly on the adapter plate, slide the plate toward the front of the charger base until it locks.



2.

Plug-in, either the AC Adapter or the DC Cigarette Lighter power adapter, and connect the other end of the power adapter cable to the power input jack on the rear of the charger unit.

#### Status LED's

Together, the three LED's on the front of the Mach 1 charger will indicate the status of the battery and the charger. See the descriptions and diagrams included in the following sections regarding the various indications and their meaning.

### Estimated Battery Charge Times:

Battery Capacity	Time to MAX Charge *
750 mAh	30 minutes
1200 mAh	39 minutes
1500 mAh	50 minutes
1850 mAh	65 minutes
2400 mAh	80 minutes
3700 mAh	110 minutes
5550 mAh	195 minutes

\* Actual charge times may vary depending on the battery, internal protection circuits, cell capacity and condition.

#### Trouble Shooting Tips:

- Batteries should be replaced when runtime becomes short.
- If a battery is attached, and no indicators are lit, the battery may not be making proper contact to the adapter plate. Unplug the unit and check that the battery is attached correctly. Also, make sure the adapter plate is the proper one and that it is securely attached to the charger base. Also check for proper connection to the power adapter being used, recheck the connections and make sure that the AC socket or cigarette lighter has power.
- Use a clean dry cloth when necessary to keep the metal contacts of both charger and battery clean.

#### Cautions:

- For use with 3.6-3.7 & 7.2 – 7.4V Lithium-Ion (Li-Ion) batteries ONLY! Use with other type batteries voids warranty, may cause damage to the charger / battery and possibly cause injury to the user.
- For best battery life, we suggest recharging Li-Ion batteries after use and before storage.
- Do not leave battery connected to camcorder or camera when not in use.
- Do not leave the battery connected to the charger for prolonged periods. Remove the battery after charge is complete.
- Unplug the charger when not in use.
- Do not use, place or store the charger where it may come into contact with water or moisture.
- Always replace frayed or damaged wire and broken plugs immediately.
- Use this charger with the power adapters included in the package only.
- It is not necessary or recommended to discharge a Li-Ion prior to charge.
- No user serviceable parts, opening chassis will void warranty.

**Note:** Batteries will self discharge when not in use whether they are installed in a camcorder, digital camera or not. Batteries can be kept fresh if you recharge them every 2-3 months.

5.

### Charging Your Battery

**StandBy Mode:** Without any battery installed, all of the LED's will be off (see diag.-1).



Diag.-1

Once a battery has been properly connected to the appropriate adapter plate, the charger will determine the status of the battery and begin the proper phase of the charging cycle.

**Note:** If you are installing a battery that is already fully charged or has just finished charging, no indicators will light and the charger will take no action. If this happens, test the battery on your camera or camcorder to verify its condition.

There are 3 phases to the charge cycle. The battery may be removed during any of the charging phases without harm to the battery or charger unit.

**Phase I – Initial Charge:** All 3 LED's flashing in sequence from MED (left) to MAX (right) (see diag.-2). If the battery is low, this will be the first charge phase. With high capacity batteries, this phase can sometimes be the longest of the 3 phases. Similarly, with some low capacity batteries and batteries reaching the end of their life, this phase can be very short.



Diag.-2

**Note:** When the battery is first connected, the LED's may instantly indicate MED, HI or MAX charge depending on the charge status of the battery. The process will continue normally from that point forward.

**Note:** It is normal for the charger, AC adapter, or the battery to become warm during charging.

3.

### Specifications:

AC Adapter:	110 – 240VAC, 50 / 60Hz
Power Input:	12-18 VDC @ 1.7A
Charge Method:	Patented Neotherm Charging Technology
Charge Rate:	Variable, Continuously Adjusted via Microprocessor

### Limited 3 Year Warranty

This limited warranty starts from the date of original purchase and expires three years thereafter. If, during this period, any part, because of manufacturing defects or workmanship, fails to function properly under normal use it will be repaired at no charge for parts and labor or, at our option, the product will be replaced. The following is excluded: damages from delay or loss of use of equipment or damaged batteries, malfunctions resulting from misuse, tampering, unauthorized repairs, modifications or accident.

Package the unit and its accessories carefully using ample padding material to prevent damage in transit and ship it prepaid and insured to:

LENMAR ENTERPRISES, INC.  
4035 Via Pescador  
Camarillo, CA 93012

When sending in product for service, your package should include evidence of date and place of purchase. Enclose \$10.00 for shipping and handling for addresses in the U.S. and \$15.00 in Canada. For outside the U.S. and Canada, freight will vary depending upon ship-to address.

### Proposition 65 Notice (California)

The following statement is required in the state of California pursuant to the settlement of an action brought by the Mateel Environmental Justice Foundation against multiple electronics and appliance manufacturers

- WARNING:** Handling the cord on this product will expose you to lead, a chemical known to the state of California to cause birth defects or other reproductive harm. **Wash hands after handling.**

For additional questions, comments or to explore other Lenmar battery solutions, visit our web site at: [www.lenmar.com](http://www.lenmar.com) or call 805/384-9600 from 9AM – 5PM PST.

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